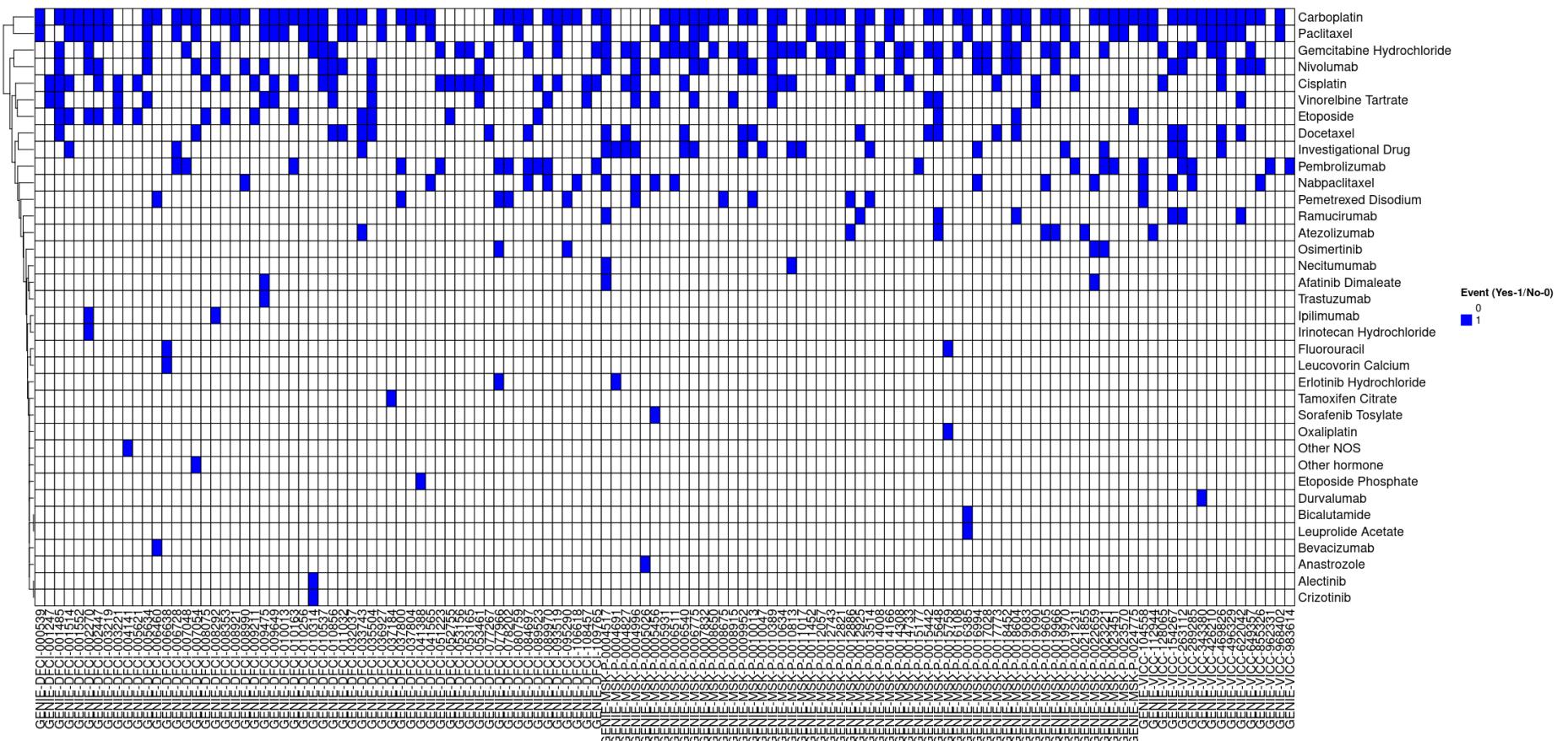


**Figure S1**



**Figure S1.** Patient-level treatment heatmap. Each column represent a patient and each row shows the drug.

**Figure S2.**

**A**

**Data Table:** Cancer Info

**Filter Data Table**

- first\_index\_ca\_days (1)
- first\_index\_ca\_mos (1)
- first\_index\_ca\_yrs (1)
- naaccr\_first\_contact\_int (82)
- age\_dx (36)
- ca\_d\_site (5)
- ca\_type (2)
- naaccr\_histology\_cd (12)
- ca\_hist\_adeno\_squamous (3)
  - Adenocarcinoma
  - Carcinoma
  - NA
- naaccr\_behavior\_cd (2)

**Sample/Patient ID Column:** record\_id

**Reference Feature:** institution

**Features of Interest:** ca\_grade stage\_dx ca\_hist\_adeno\_squamous age\_dx

**Select Reference for Odds Ratio:**  Test for Over-Representation (Enrichment)  
Please select an option below

**B**

### Feature Breakdown

Count of unique record\_id identifiers by the reference feature: institution across selected features

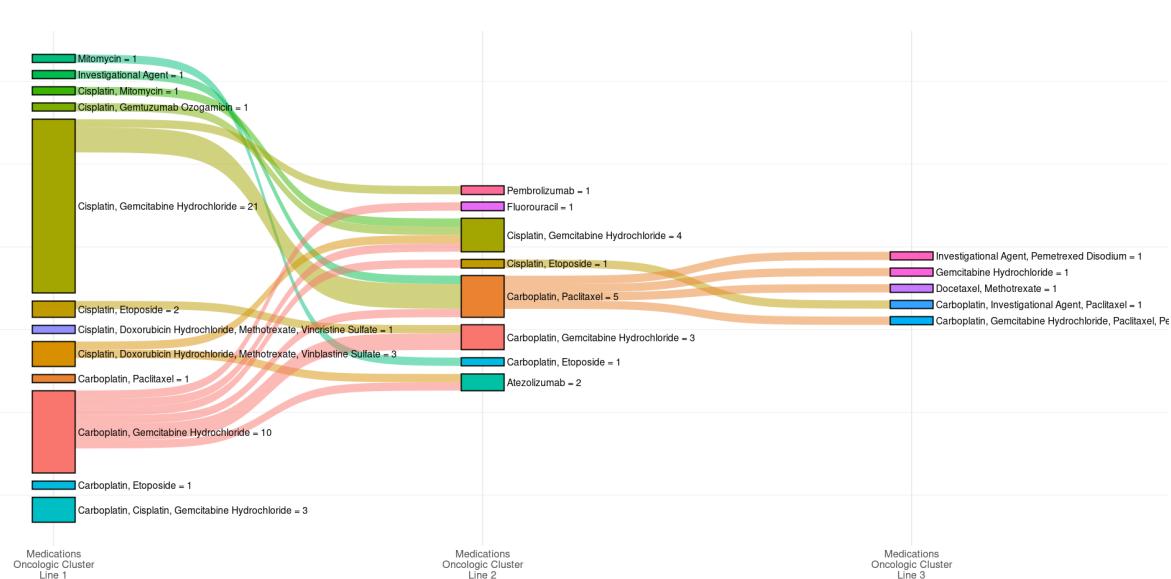
Feature	institution DFCI	institution MSK	institution VICC
<b>ca_grade</b>	---	---	---
Total (non-NA)	11	15	2
I	2	3	1
II	4	5	1
III	5	7	0
NA	6	34	3
<b>stage_dx</b>	---	---	---
Total (non-NA)	17	49	5
Stage II	7	22	2
Stage III	10	27	3
<b>ca_hist_adeno_squamous</b>	---	---	---
Total (non-NA)	17	49	5
Adenocarcinoma	17	49	5
<b>age_dx</b>	---	---	---
Max	73	77	69
Mean	56.71	59.82	58.4
Median	57	60	55
Min	41	35	52

 Download

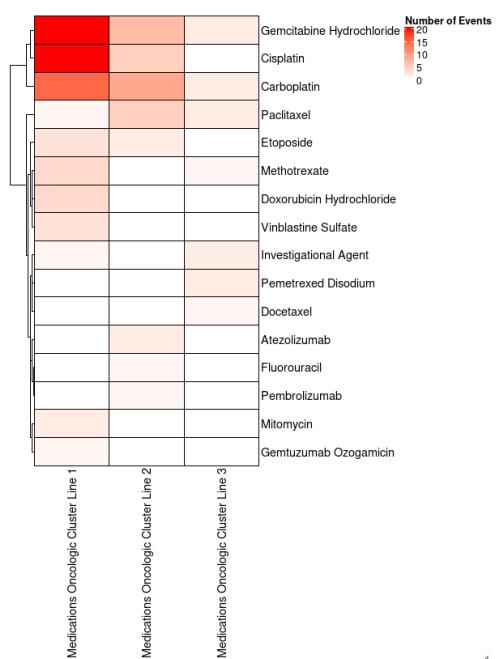
**Figure S2.** ShinyEvents facilitates the exploration of the data and can easily obtain a high-level summary of the data. A) The user can filter and restrict patients or samples based on the ID column. In the example, the number of incidence across institutions were stratified based on cancer grade, staging, and histology. The age distribution was also calculated.

**Figure S3**

**A**



**B**



**Figure S3.** Treatment cluster based on a 3-month window in the Moffitt BLCA cohort. **A)** Sankey plot showing the oncologic treatment clusters. **B)** The heatmap shows the number of patients treated with the drug in each treatment line.

**Figure S4**

**A**

Pre-Processing    Patient Visual Analytics    Treatment Associated Analytics    Time-To-Event Analysis    Cohort Overview

**Project Name:**  
Orien GU Bladder Moffitt Patients CISGEM CARGEM NAC

**Data Input**    **Data Adjustment**

**Subset Patients**

**Select Data Table to Subset:**  
Please select an option below

**Adjust Summary Cluster Window**

**Event Cluster Window (Months)**  
3

**Update Event Clusters**

**Set Unit of Time**

**Set Applications Interval Time Unit**  
Years

**B**

Pre-Processing    Patient Visual Analytics    Treatment Associated    **Time-To-Event Analysis**    Cohort Overview

**Data Selection**  
Select Start Point:

- Medications Oncologic Cluster Line 1: Cisplatin, Gemcitabine Hydrochloride
- Medications Oncologic Cluster Line 1: Carboplatin, Gemcitabine Hydrochloride

**C**

Pre-Processing    Patient Visual Analytics    Treatment Associated    **Time-To-Event Analysis**    Cohort Overview

**Data Selection**  
Select Start Point:

- Medications Oncologic Cluster Line 1: Cisplatin, Gemcitabine Hydrochloride
- Medications Oncologic Cluster Line 1: Carboplatin, Gemcitabine Hydrochloride
- Medications Oncologic Cluster
- Medications Oncologic Cluster Line 1
- Medications Oncologic Cluster Line 1: Cisplatin, Gemcitabine Hydrochloride
- Medications Oncologic Cluster Line 1: Carboplatin, Gemcitabine Hydrochloride
- Medications Oncologic Cluster Line 1: Carboplatin, Cisplatin, Gemcitabine Hydrochloride
- Medications Oncologic Cluster Line 2
- Medications Oncologic Cluster Line 2: Carboplatin, Gemcitabine Hydrochloride
- Medications Oncologic Cluster Line 2: Carboplatin, Paclitaxel
- Medications Oncologic Cluster Line 2: Cisplatin, Etoposide

**Treatment Summary Cluster x Metastasis Cluster x**

- Search...
- Full Treatment Summary
- Treatment Summary Cluster
- Medications Immunologic Summary
- Medications Immunologic Cluster
- Medications Oncologic Summary
- Medications Oncologic Cluster
- Metastasis Summary
- Metastasis Cluster
- Radiation Summary
- Radiation Cluster

**Treatment Summary Cluster x Metastasis Cluster x Progression/Recurrence x**

- prog
- Clinical Time Points
- Progression/Recurrence
- Solid Tumor Response
- Solid Tumor Response: Prog/PD-Overlapping lesion of bladder
- Solid Tumor Response: Prog/PD-Lateral wall of bladder
- Solid Tumor Response: Prog/PD-Bladder, NOS

**Treatment Summary Cluster x Metastasis Cluster x Progression/Recurrence x**

- death
- Clinical Time Points
- Death

**D**

Pre-Processing    Patient Visual Analytics    Treatment Associated    **Time-To-Event Analysis**    Cohort Overview

**Strata Selection**

**Data Table:** ShinyEvents Treatment Clusters

**Strata Column:** Medications Oncologic Cluster Line 1

**A-AXIS Groups:**

- Cisplatin, Gemcitabine Hydrochloride
- Carboplatin, Gemcitabine Hydrochloride

Group Unselected Variables

**Figure S4. A)** setting the treatment clustering window, **B)** selecting the starting time, **C)** defining the surrogate end point, and **D)** defining the groups for the survival analysis..

**Figure S5**

**A**

{ ShinyEvents } About Pre-Processing Patient Visual Analytics Treat

Project Name:  
ShinyEvents

Data Input Data Adjustment

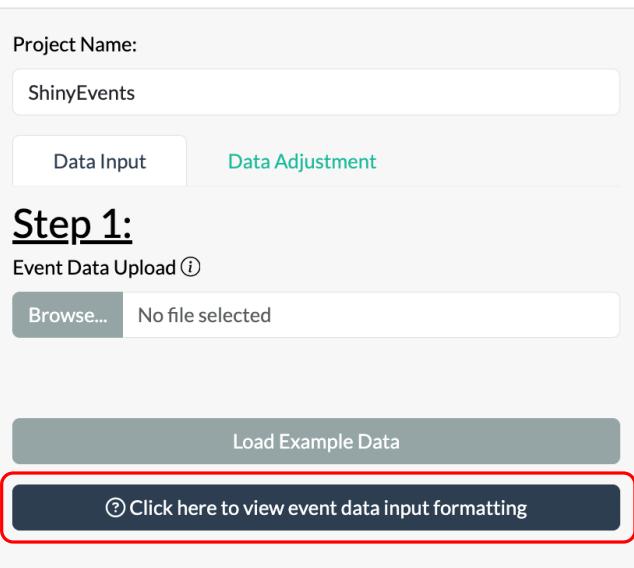
**Step 1:**

Event Data Upload ⓘ

Browse... No file selected

Load Example Data

③ Click here to view event data input formatting



**B**

## Event Data Help

The event data file must include at least four columns: patient ID, event name, event start time, and event end time.

Optional columns can include event type, event details, or patient details to aid in filtering and grouping.

### Event Data Column Descriptions

Show 3 entries Search:

Column Type	Note	Description	Example
1 Patient ID	Required	Unique identifier for each patient.	'Patient 1';'Patient 2';'Patient 3'
2 Event Name	Required	Specific clinical events the patient encountered.	'Diagnosis';'Cisplatin treatment';'Progression';'Radiation to Lymph Node'
3 Event Start Time	Required	Numeric start time for the event with units of years, days, months, or hours. Units will be entered in app UI.	58.75, 21458.44, 705, 12

Showing 1 to 3 of 7 entries

Previous 1 2 3 Next

### Example Event Data

Show 3 entries Search:

PatientID	Event Name	Event Type	Event Start	Event End	Event Detail	Sex	Race
1 Patient 1	Diagnosis	Clinical Event	43.75	43.75	Papillary Carcinoma	Male	Black or African American
2 Patient 1	Cisplatin	Medication	43.98	44.72		Male	Black or African American
3 Patient 1	Gemcitabin Hydrochloride	Medication	43.98	44.72		Male	Black or African American

Showing 1 to 3 of 23 entries

Previous 1 2 3 4 5 ... 8 Next

Dismiss

**Figure S5. Input format requirements.** **A)** Button to access input formatting requirements. **B)** Key input columns that is required as input.